

Political alignment and project funding

Luisa Schneider, Daniela Wech and Matthias Wrede

*Friedrich-Alexander University Erlangen-Nürnberg (FAU)**

- 26 June 2021 -

Abstract

We analyze the relationship between the party affiliation of politicians at different levels of government and the spatial distribution of funding for research, development and innovation projects. In particular, we are investigating whether more federal grants are being granted in Germany for projects in federal states whose government is led by the same political party as the responsible ministry at federal level. Our dataset contains detailed information on publicly funded projects in Germany in the period 2010-2019. Using a fixed effects estimation approach, we find a link between grant allocation and party affiliation of funding for research, development and innovation projects, in particular smaller ones. For these projects, political alignment is associated with an average increase in public funding by almost 10,000 euro. Our results suggest that public funds for research, development and innovation projects could be used more efficiently than they are.

Keywords: Project funding, political alignment, innovation policy, regional policy, intergovernmental relations, New Public Management

JEL Classification: D72, R12, H77

*Chair of Economics and Social Policy, Friedrich-Alexander University Erlangen-Nürnberg (FAU), Findelgasse 7, 90402 Nuremberg, Germany, e-mail: matthias.wrede@fau.de

1. Introduction

Economic growth and social returns are primary objectives of government investment. However, public investments and transfers serve not only the general interest but also the interests of specific groups. Driven by different motivations, politicians are likely to have an incentive to influence the allocation and spatial distribution of public investments and transfers. This also applies to the financing of research and development projects, provided that such projects bind highly qualified workers to the respective locations and have local multiplier effects. Questions frequently addressed in the literature are whether the location of core constituencies and swing voters or vote margins influence the distribution of transfers (see [Dellmuth et al., 2017](#); [Kauder et al., 2016](#); [Larcinese et al., 2013](#)). In the same way, central governments might use transfers to support aligned local governments (see [Brollo and Nannicini, 2012](#)). Electoral concerns can be one reason for such *alignment biases*: Local governments who share the central government’s party are expected to offer support in upcoming elections. Moreover, central governments might especially support aligned local governments to reward loyalty and to push through the own political agenda on the local level. Firstly, this incentive is of relevance especially in Germany where many policy measures are implemented on the local level. The federal member states share state authority with the federation and are thus endowed with a variety of decision competencies. On the municipal level, the German constitution ensures a certain level of self-administration to facilitate independent decision-making within local communities. Secondly, aligned governments might naturally have similar policy interests or tend to readily support central party decisions due to a given level of party discipline ([Baskaran and Hessami, 2017](#); [Curto-Grau and Zudenkova, 2018](#)).

The international literature has addressed questions around potential alignment biases intensively, however mostly utilizes *intergovernmental transfers* in investigating the impact of such political compounds. While recent studies suggest that higher-tier governments tend to distribute intergovernmental transfers in favor of lower-tier governments with the same political affiliation (see [Bracco et al., 2015](#); [Baskaran and Hessami, 2017](#); [Brollo and Nannicini, 2012](#)), only little is known on the impact of political alignment on *project funding* in the highly relevant field of research and innovation.

We extend previous studies by examining the effect of political affiliations between central and local governments on research and development funding, which has, to our knowledge, not yet been considered in this regard. Our dataset contains detailed information on publicly funded research and development projects in Germany over the period 2010-2019. This allows us to analyze whether federal states which are ruled by the same political party as the federal ministry which distributes the grant, benefit from this political connection. Since state governments only benefit indirectly from project grants, finding a significant impact could be of particular interest and would suggest that distortions might even exist in areas where one would not expect them in the first place. It is particularly important to analyze and optimize the allocation of funds, since in Germany high and increasing public expenditures are made for the support of research and innovation. Having spent 3% of GDP on research and innovation in 2018, Germany has already reached one goal of the Europe 2020 strategy with a new target set to 3.5% until 2025. This corresponds to an increase of government investments in this field by around 70% between 2005 and 2017 ([Bundesministerium für Bildung und Forschung, 2019, 2020](#)). The importance of research and innovation in previous years’ budgets becomes even clearer when compared to infrastructure-related investments, which amounted to just 1.7% of GDP in 2018 ([Bundesministerium für Wirtschaft und](#)

[Energie, 2020](#)).

Following the existing literature on intergovernmental transfers, we evaluate whether political alignment impacts the geographical allocation of governmental funding for research, development and innovation projects across German states. In contrast to the majority of studies, we use data on direct project funding instead of intergovernmental transfers in the specific field of funding for research, development and innovation. Novel insights can be expected in this regard for several reasons. (1) We transfer the international evidence on alignment effects to funding for research, development and innovation projects. Ensuring effectiveness and equal opportunities regarding project funding is especially necessary with regards to this field’s relevance and competitiveness. (2) Direct project funding differs from intergovernmental transfers in that the recipients are not directly linked to local governments and political parties. The fact that local governments are not supported directly and that the additional funds are only indirectly credited to the local government by the voters can have a positive or negative effect on the political distortion of the allocation of funds. On the one hand, the incentive for the political leadership of the Federal Ministry to support regions that are led by governments with the same political orientation could be weaker, since the governments in the recipient regions benefit less at the ballot box. On the other hand, the project funding makes it possible to disguise the party-political context, which could have an incentive-enhancing effect. Our hypothesis is that political alignment ultimately has a non-negligible effect on project funding.

In line with this hypothesis, we find that political affiliation between receiving state and giving federal government (ministry) is associated with a substantial increase of the funding amount of projects in the respective states, in particular for smaller projects. On average, it takes three months for the political alignment to have a significant influence on the level of project financing. We find that the effects do not occur for state governments affiliated with other parties in the governing coalition at the federal level or with other parties on the same political spectrum. At the aggregate level, we find that political affiliation only has significant effects on the amount of funding per project, but neither on the likelihood of any funding nor the number of projects, probably reflecting that the political influence is primarily in the setting of the project budget.

The remainder of the paper is structured as follows. Section 2 gives an overview on the existing international empirical literature we contribute to. In Section 3 we explain the research and development grant system as well as parts of the political landscape in Germany that are relevant for our study. In Section 4 we describe our dataset and show some descriptives. In Section 5 we describe our identification strategy and the results including robustness checks. Section 6 concludes.

2. Literature

Our paper contributes to three broader strands of literature. The first strand is the literature on the political economy of (inter)governmental transfers. The role political motives play in the distribution of governmental transfers has been addressed in several ways. Besides effects of political alignment, a large body of empirical literature investigates pork barrel spending intended to benefit the home districts

of Congress members.¹ Additionally, several recent studies addressed the relationship between public investment and the location of core supporters.² Dixit and Londregan (1995, 1998) provide theoretical frameworks which show that redistribution is impinged by political determinants and suggest that political alignment might be a considerable factor. A large body of empirical literature exists on the US. While Levitt and Snyder Jr. (1995) do not find significant political alignment effects on federal grants flowing to districts, Grossman (1994) for instance finds that states receive larger per capita amounts of grants if they share the federal government’s party. Larcinese et al. (2005) support these findings for US federal budget allocation to the states. Moreover, analyzing the American Recovery and Reinvestment Act, Young and Sobel (2013) find that Democratic members of the House of Representative appropriations subcommittee and authorization committee managed to distribute more funds to their respective states. Applying regression discontinuity analyses Albouy (2013) shows that Republican states receive more federal transfers, especially in the fields of infrastructure and defense while Democrats rather receive education and urban development grants. Lastly, Reingewertz and Baskaran (2020) suggest that the political alignment effect on federal spending found in Berry et al. (2010) is mainly driven by Democratic presidents and health and environment-related expenditures. For Brazil, Brollo and Nannicini (2012) uses a regression discontinuity design and compare municipalities in which the candidate affiliated to the presidential coalition at federal level narrowly won the local elections with municipalities in which the affiliated candidate narrowly lost. They show that mayors aligned with the president receive major infrastructure transfers after being elected in the two years leading up to the next local elections. Their results suggest that there is no alignment in the first two years of the mayor’s tenure. Sakurai and Theodoro (2020) apply triple differences and show that the effect of political alignment of Brazilian municipalities with the federal government is substantial for capital transfers, but negligible for other current transfers. Moving to Europe, Solé-Ollé and Sorribas-Navarro (2008b) show in a difference in differences (and triple differences) setting, that Spanish municipalities which are controlled by the same party as upper-tier governments (central, regional, upper-local) receive around 40% more capital grants than unaligned municipalities. Bracco et al. (2015) analyze political alignment effects for Italy within a regression discontinuity design. Results indicate that more grants (around 40%) are channeled towards municipalities where the mayor belongs to the same party as the central government. Moreover, re-election probabilities are affected and effects are more pronounced when municipal elections are close.³ Baskaran and Hessami (2017) investigate the impact of political alignment on budget support transfers from the German federal state of Hesse. Results from regression discontinuity analyses show that local municipalities who share Hesse’s political party only receive more grants if the local support for the state government is strong. In case of weak local support for the state government, they find no difference between aligned and unaligned municipalities. Kemmerling and Stephan (2002) evaluate infrastructure investment grants directed from federal states

¹Studies investigating whether more governmental transfers are granted to home constituencies or home regions: For Belgium, see Jennes and Persyn (2015), Stratmann and Baur (2002) and Maaser and Stratmann (2016) for Germany, Psycharis et al. (2019) for Greece, Carozzi and Repetto (2016) for Italy, Knight (2002, 2004) and Berry and Fowler (2016) for the US.

²Studies exploring whether the location of core/swing voters impacts the distribution of grants: For France and Italy, see Dellmuth et al. (2017), Kauder et al. (2016) for Germany, Castells and Solé-Ollé (2005) for Spain and Ansolabehere and Snyder Jr (2006) for the US.

³See Cadot et al. (2006) for evidence on France and Pinho and Veiga (2007) and Migueis (2013) for a maturing democracy, namely Portugal. Pinho and Veiga (2007) suggest that political alignment was especially important in years where the democracy was not yet fully established, but not in later periods.

towards German cities. They find that the political affiliation of the local city government and the state government is an important factor in explaining the allocation of grants to 87 studied cities.

Furthermore, we contribute to the broader literature on the effects of political alignment. For instance, [Asher and Novosad \(2017\)](#) find that local regions in India which are governed by the ruling party experience an increase in local economic growth (measured as private sector employment growth, light emissions and stock prices) compared to opposition-governed regions. With regards to the politicization of bureaucracy, [Colonnelli et al. \(2020\)](#) and [Brassiolo et al. \(2020\)](#) find that political connections increase the probability of being employed in the public sector in Brazil and Ecuador, respectively. [Bach and Veit \(2017\)](#) demonstrate for Germany, that candidates who are politically loyal to ministers are more likely to be promoted to the highest civil service positions than non-loyal contenders. [Fiva et al. \(2021\)](#) show that politician–bureaucrat alignment significantly increases top civil servants’ wage in Norway. [Palus and Yackee \(2016\)](#) find evidence against the ally-principle, specifically in the delegation of policy discretion and show that US state agency heads receive less freedom in major policy, administrative or budget decisions when their partisanship is aligned with the governor or state legislature. Regarding the effects of political alignment on voting behavior, [Solé-Ollé and Sorribas-Navarro \(2008a\)](#) find evidence that allocating grants to aligned governments does buy local support in the case of Spanish municipalities. [Garofalo et al. \(2020\)](#) suggest that Argentinian voters also tend to support candidates aligned with the president’s party in expectation of benefiting in future monetary transfers.

Finally, we contribute to an existing literature exploring (the allocation of) grants in the field of research and development. While a large body of literature evaluates the effectiveness of research and development or innovation grants,⁴ our focus is the allocation and potential politico-economic determinants therein. Studies show that normative criteria play a role in the allocation of research and development (R&D) grants. For Germany, [Aschhoff \(2010\)](#) shows that the selection is determined by prior grant receipt and [Cantner and Kösters \(2012\)](#) find that, for start-ups, subsidies are given out based on high quality inventions and innovative business ideas. The literature investigating political motives in the distribution of funding for research, development and innovation projects is scarce. [Hegde and Mowery \(2008\)](#) show that congressional appropriations committee members have an influence on the distribution of federal funding for biomedical research into their states to some extent. Exploring scientific research grants, [Grimpe \(2012\)](#) finds that normative criteria like patent stock and publications determine the receipt of industry and foundation grants. However, these productivity measures could not be associated with government grants. These results suggest that political factors might play a role here.

3. Institutional background

3.1. The German federal system

Within Germany’s federal system, the federation and the 16 federal states share state authority. Each federal state is governed by a state prime minister (“Ministerpräsident/in”) who is elected by the state

⁴There are recent studies which focus on the regional perspective of the grants’ effectiveness. [Cataldo and Monastiriotis \(2020\)](#) for instance show a positive effect of EU structural funds on economic growth in the UK overall and for less developed regions in particular. [Kang et al. \(2019\)](#) find that medical sector research grants in the US seem to foster employment, especially in regions where intellectual capital is plentiful. Likewise, [Tingvall and Videnord \(2020\)](#) show for Sweden that publicly sponsored research and development grants have positive growth effects if channeled towards small and medium sized enterprises located in regions where skilled labor is copious.

parliament. The states are endowed with own competencies regarding legislation, administration and jurisdiction. State competencies lie in many different policy fields, such as cultural issues, school and education policy, municipal affairs (organisation rights for cities, municipalities and counties), police law, and public health infrastructure (Woyke, 2021, p.66). Moreover, state prime ministers can contribute to political decisions on the federal level through their participation in the Federal Council (“Bundesrat”) (Woyke, 2021, p.67). In general and in terms of decisions within the Federal Council, it is likely that prime ministers often face a tradeoff between representing their states’ interests and giving into party discipline (Plöhn and Steffani, 1994).

3.2. Federal research and innovation funding

The German federal government offers direct project funding in the form of non-repayable grants for research and innovation projects (see [Bundesministerium für Bildung und Forschung - Referat Informationstechnik, 2020](#)). The provision of these grants is administered and financed by several federal ministries, namely the Ministry of Economic Affairs, the Ministry of Transport, the Ministry of Environment, Nature Conservation and Nuclear Safety, the Ministry of Food and Agriculture and the Ministry of Education and Research.⁵ Potential recipients include German industrial companies, universities and institutions of higher education or other (federal) institutions engaged in research and innovation activities.⁶ The responsible ministries make their program proposals publicly available via the federal gazette or their websites. Program proposals mainly encompass information on funding purpose, target group, prerequisites, amount of assistance, time frame and application and admission process.⁷ While project management organizations are in charge of the programs’ technical and administrative coordination, the final admission decision is made by the executing ministry ([Bundesministerium für Bildung und Forschung - Referat Grundsatzfragen von Innovation und Transfer, 2021](#)). Since programs are not completely identical in their application and approval processes, the exact time structure from project application through admission to project start is not directly traceable, which leads us to also looking at lags.

4. Data and descriptives

In this section, we describe the dataset, our treatment definition, and provide some descriptive statistics.

⁵Besides federal funding, there are a number of state-specific technology, research and innovation funding programs designed for German enterprises and institutions. Moreover, the European Commission offers support in these fields in the context of specific funding programs, like the European Cooperation in Science and Technology, Eureka, the Eurostars programme or Horizon Europe.

⁶Examples of federal institutions engaging in research and innovation activities and eligible for project grants are the Robert Koch Institute or the Federal Institute for Research on Building, Urban Affairs and Spatial Development. Fraunhofer-Gesellschaft, Max-Planck-Gesellschaft and the German Research Foundation are considered non-federal institutions. Besides (federal) institutions, private companies are an important innovation-elevator by contributing almost 70% of research and innovation expenditures. Especially activities by small and medium sized enterprises can be considered pathbreaking for regions’ innovation progress ([Bundesministerium für Bildung und Forschung - Referat Grundsatzfragen von Innovation und Transfer, 2021](#)).

⁷See www.foerderinfo.bund.de/de/foerderfinder-1715.php for current published program proposals.

4.1. Data

To answer our research question we make use of a publicly accessible database provided by the federal government. The so called *funding catalogue* documents projects in the fields of research and innovation that were accepted for government funding within the offered programs ([Bundesministerium für Bildung und Forschung - Referat Informationstechnik, 2020](#)). The dataset contains information on grant recipient, location of the recipient (municipality level), project duration and the amount of assistance granted for the full project length. We observe around 107,000 funded projects between 2010 and 2019. We leave out the most recent projects starting in 2020 to avoid measuring any special effects due to the Covid-19 pandemic. Projects are incorporated into the database 60 days after approval. The database provides rather detailed information on granted projects, Table 10 in the Appendix gives an overview on the database’s structure.

Table 1: Funding 2010-2019 (million euro): Funding Catalogue vs. Federal Report on Research and Innovation

	Funding Catalogue	Federal Report on Research and Innovation
BMWi	8,772.05	9,805.50
BMBF	34,737.71	32,820.70

One drawback of our dataset is that it does not constitute a complete coverage of all accepted projects. Each ministry decides which projects enter into the database which might raise concerns whether certain projects are systematically excluded from our database. To crosscheck our numbers and get a tendency on how many projects might be missing in our dataset, we looked at the actual amount expended by the government on funding for research, development and innovation projects, which numbers are readily available from the *Federal Report on Research and Innovation* and its accompanying database ([Bundesministerium für Bildung und Forschung, 2020](#)). While the federal report documents actual expenditures during any given year, the funding catalogue includes expenditures for the whole lifetime of a project (documented in the first year of a project). For instance, if a project that starts in 2019 then the whole amount of assistance for the lifetime of this project will be documented in the funding catalogue, whereas in the federal report only the fraction that was actually given to the project in 2019 will be shared. Numbers are thus not comparable on a yearly basis, so we compare the sum of the amounts of assistance from 2010 to 2019. See Table 1 for the aggregated comparison, where we show numbers (in million euro) for the Federal Ministry of Economic Affairs (BMWi) in the top row and the Federal Ministry of Research and Education (BMBF) in the bottom row. For the BMWi, the numbers indicate that the funding catalogue actually covers around 90% of actual expenditures, so the number of projects not published in the funding catalogue does not seem to be remarkably high. Comparing the numbers for the BMBF yields a similar picture, where the difference between funding catalogue and actual expenditures lies at around 6%. The lower numbers for the federal report can be explained by the differences in documenting the amounts of assistance between the two databases, meaning the timing when project expenditures are documented. Unfortunately, the federal report only reports numbers on an aggregated level (per ministry or state), so we cannot deduce any information on the type of projects that are excluded from our dataset. However, from this first comparison, we can conclude that there is no massive exclusion of projects. If ministries did not publish certain projects for tactical reasons, for example because political incentives play a role, and we still estimate an effect, this effect would be

underestimated. It would also be unproblematic if certain projects were omitted only by chance, since in this case the estimation results would still be unbiased.

A big advantage of the database we use is the very large number of observations – more than 100,000. A closer look at the database reveals that there are very few projects with extremely large amounts of assistance. The top five largest values are around 500 to 4000 times as large as the average amount of assistance grant recipients get with the maximum value reaching over 2 billion euro. Table 12 in the Appendix shows the top ten largest projects. It is very plausible that the possibilities and incentives for politically motivated interventions, but also compliance rules, depend on the size of the project. The Federal Office of Administration – Competence Centre (Major) Project Management provides a suitable way of addressing this question. Projects are classified according to project size – small projects are defined by a maximum volume of 2 million euro, medium-sized projects are larger than 2 million euro and have a maximum volume of 10 million euro, major projects are larger than 10 million euro, and mega projects are larger than 100 million euro (Kompetenzzentrum (Groß-)Projektmanagement, 2020). Table 11 in the Appendix provides a more detailed overview of the project classification according to project size. When adopting this classification scheme to the projects in our database, 96.81% of them are small projects, 2.73% medium-sized projects and 0.46% major projects including mega projects (which represent less than 0.02%). In our regressions, we account for project size accordingly.

Finally, Table 2 shows the number of projects we include in our analyses. In total, there are around 107,000 projects in the funding catalogue for the ten-year-period from 2010 to 2019. Excluding observations with amounts of assistance below 200 euro reduces the sample by around 200 projects. The exclusion of projects where grant recipients and executing entities are not in the same federal state, which we explain in the next subsection, leads to a reduction of the sample size by around 8,000 observations. The huge majority of the close to 99,000 projects in our sample are small projects (almost 96,000). There are around 2,600 medium-sized projects and nearly 500 large projects.

Table 2:

Number of projects

total number of projects in database 2010-2019	107,019
projects in database with amount of assistance \geq 200 euro	106,803
our sample: projects with amount \geq 200 euro + grant recipient and executing entity same federal state	98,870
small projects	95,782
medium-sized projects	2,614
large projects	474

Notes: small projects \leq 2 million euro, medium-sized projects \leq 10 million euro, large projects $>$ 10 million euro.

4.2. Treatment

Our treatment indicator is equal to 1 if the responsible federal minister and the state prime minister have the same party affiliation at the time of the start of the project. In our sample this is the case if the federal minister and the state prime minister are both either from the Christian Democratic Union

(CDU)/Christian Social Union (CSU) or from the Social Democratic Party (SPD). In our benchmark analysis, we do not differentiate between the CDU and the CSU, because the CSU is only active in Bavaria (“sister party” of the CDU), the CDU, however, in all other federal states and both parties form a parliamentary group in the German federal parliament (“Bundestag”). Later we will also consider the two parties separately. The treatment indicator is equal to 0 for all other combinations of party affiliations between federal ministers and state prime ministers. During the period under review, federal ministers and prime ministers of other political parties were also in office (the Free Democratic Party (FDP), the Greens, and the Left Party); between 2010 and 2019, however, there was never a period in which a federal minister and a state premier belonged to the same party, with the exception of the CDU / CSU and the SPD.

The exact coding of the treatment indicator is as follows: If there is a change in the party affiliation of the federal minister or the state prime minister in the course of a month, the indicator changes its value on the 1st of the following month; a project usually starts at the beginning of a month. We have information on the beginning (and the end) of the project duration; data on the time of approval is unfortunately not available. However, the following two facts allow us to set up our timing structure. It is indicated in the funding catalogue that projects are included in the database 60 days after approval. On top of that, we have the following information on the timing structure: The beginning of the project duration of the most recent projects included in the database ranges from around several months to half a year in the future, and in very few cases, up to one year. From this time frame, one can infer that it is reasonable to assume that projects usually start rather quickly after they were approved. To account for potential delays between the approval of a project and the beginning of the project duration, in one specification, we also analyze lags of the treatment indicator.

Our dataset makes it possible to distinguish between the grant recipient and the executing entity and their respective location. In order to answer our research question as to whether the prime ministers benefit from the same party membership of the federal minister, the respective federal state must actually benefit from the funding by the federal ministry. To make sure that this is the case in our analysis, we only include funded projects in our sample where the grant recipient and the executing entity are located in the same federal state. If the executing agency is located in a different federal state than the grant recipient, which may be the headquarters of a company, for example, it is difficult to determine whether the federal state in which the executing agency is located, or rather the federal state in which the grant recipient is located, benefits from the support. One could argue generally in both directions – the region of the executing entity could benefit from increasing investment and also employment, but it might also be beneficial to the grant recipient, especially in politico-economic terms. Greater support for the region can be seen as a sign of particular political commitment and success on the part of local politicians and increases their chances of re-election. For these reasons, we exclude all projects where the grant recipients and the executing entities are not located in the same federal state. Since, in most cases, grant recipients and executing entities are actually located in the same federal state, we exclude only around seven percent of observations.

Our focus on the political ties between the federal and state governments is advantageous in several regards. Since the supported regions that we are looking at, the federal states, are rather large, the positive economic effects will largely be limited to the region in question, so that regional spillovers are of relatively little importance. Moreover, party affiliation is often claimed to be more relevant for federal

state elections than for municipal elections, as for the latter, it is argued that the personality of candidates is more relevant than their party affiliation. Polls also indicate that in municipal elections, many voters vote for politicians of a different party than they do in federal or federal state elections.

4.3. Descriptive statistics

Table 3 provides descriptive evidence on the magnitude of the assistance. The average amount of assistance of all projects in our sample lies at around 500,000 euro, but the median value is only below 200,000 euro. A large majority of projects have a volume below 500,000 euro and only few projects have a volume above 1 million euro. Medium-sized projects have an average volume of almost 4 million euro, the median value lies at around 3.3 million euro. For large projects, the mean value is around twice as high as the median value – approximately 30 million euro in comparison to 15 million euro (Table 3). The extreme differences in the size of the projects seem to make a separate analysis according to project size reasonable as already explained in the previous section. Even within the category of small projects, there is considerable variation – a huge majority of projects below 1 million euro and only few projects above 1 million euro; however, in order to avoid an arbitrary classification, we stick to the official categorization of projects according to project size given by [Kompetenzzentrum \(Groß-\)Projektmanagement \(2020\)](#). Finally, we only include projects with an amount of 200 euro or more in our regressions.⁸

Table 3:

Summary statistics: amount of assistance

	minimum	1st quan- tile	median	mean	3rd quan- tile	maximum
all projects	200	50,008	173,418	504,794	370,492	2,049,099,650
small projects	200	50,000	163,439	263,172	342,226	2,000,000
medium-sized projects	2,000,311	2,498,698	3,300,318	3,990,514	4,992,032	10,000,000
large projects	10,004,584	11,838,652	15,000,000	30,106,885	23,171,498	2,049,099,650

Notes: small projects ≤ 2 million euro, medium-sized projects ≤ 10 million euro, large projects > 10 million euro.

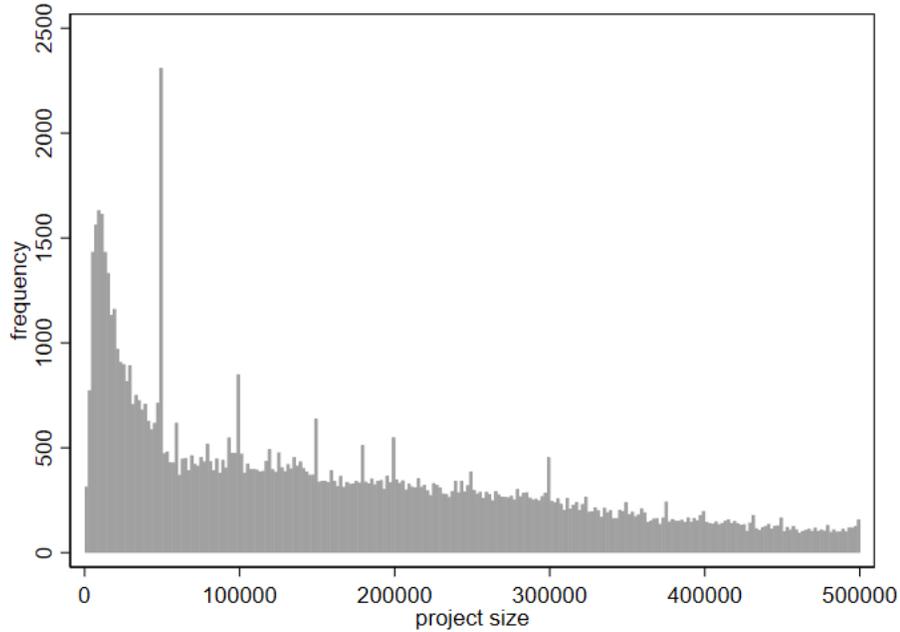
Figure 1 shows the rather asymmetric distribution of project size below 500,000 euro and also demonstrates the high frequency of projects below 50,000 euro, the threshold below which the Federal Budget Act (BHO) permits exceptions for project financing. The figure also shows bunching at certain round numbers, in particular, for 50,000 euro, 100,000 euro, 150,000 euro, 180,000 euro, 200,000 euro, and 300,000 euro some of which are upper limits for certain funding programs.⁹

Figure 2 illustrates the (smoothed) distributions of “treated” and “non-treated” projects up to a volume of 500,000 euro. Treated projects refer to projects that were granted in a federal state during a time when the respective state prime minister and the respective federal minister had the same party

⁸There are few projects included in the database with amounts of assistance of 0 euro, four projects with positive amount below 200 euro one of which is explicitly marked as an additional payment, and one project with a negative value of $-82,210$ euro described as “pseudo-project”.

⁹We also analyzed funding around these thresholds, but did not find any systematic and consistent differences between treated and non-treated projects.

Figure 1: Distribution of project size ($\leq 500,000$ euro)



affiliation; otherwise, projects are classified as non-treated projects. The two distributions are rather similar; but for very small projects, the share of non-treated projects is higher than that of treated projects, whereas for slightly larger projects it is the other way around. Table 4 shows the number of treatment changes federal states experienced during the considered time period from 2010 to 2019. We observe treatment changes for every state. For 10 federal states, changes of the treatment status occurred twice or three times; only for three federal states, the treatment status changed 12 times and more. Figure 3 depicts the number of treatment changes over time. The red lines indicate the years when new federal governments came into office after federal elections. After the federal election in September 2017, it took more than 5 months until government coalition negotiations were finished, so the year in which a new federal government came into office was 2018. Obviously, the majority of treatment changes occurred in the context of federal elections but a considerable number of treatment changes can be observed in other years. Hence, variation in the treatment indicator is not limited to only a few years, but generally occurs in many of the years of our considered time period.

Table 4:

Frequency of treatment changes in the federal states	
number of changes	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
number of states	0 5 5 2 0 0 1 0 0 0 0 2 0 0 0 0 1

5. Empirical analysis

To address our research question, we apply a fixed-effects approach.

Figure 2: Distribution of project sizes - treated vs. non-treated projects ($\leq 500,000$ euro)

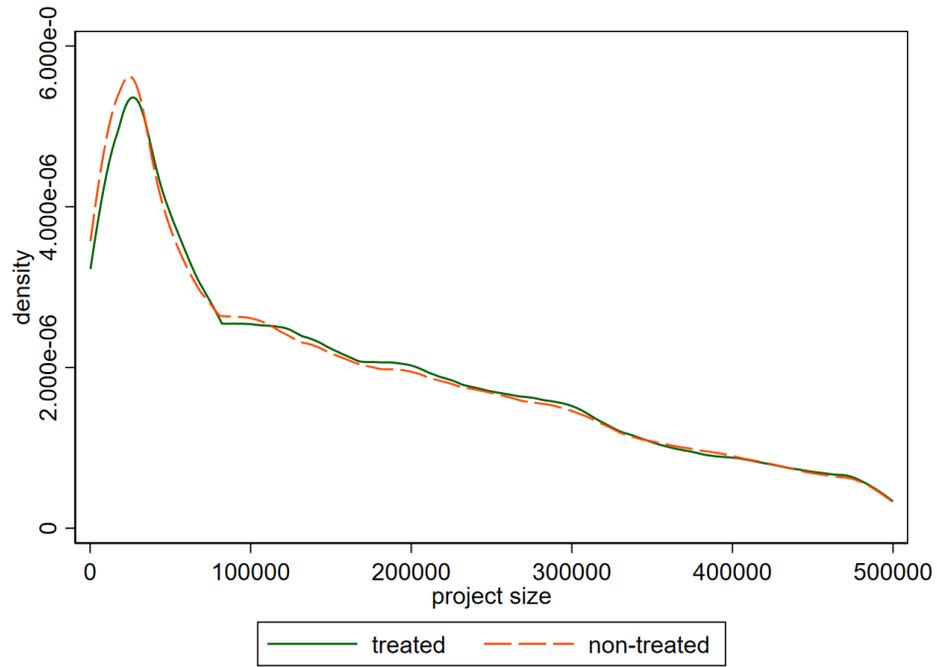
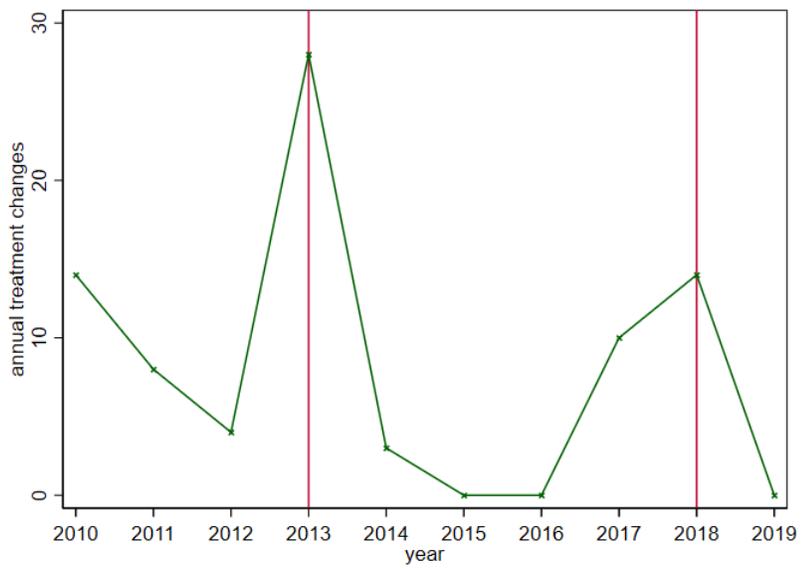


Figure 3: Number of annual treatment changes



5.1. Identification strategy

First, we estimate the following four-way-fixed-effects regression:

$$Y_{pkijt} = \beta X_{ijt} + \eta_k + \gamma_i + \delta_j + \lambda_t + \epsilon_{pkijt}, \quad (1)$$

where X is a binary treatment indicator that takes on the value 1 if the federal minister and the state prime minister have the same party affiliation, and β is our main coefficient of interest. Y denotes the outcome variable, amount of assistance, which we consider in logarithms to better account for its distribution. Our analysis is at the project-level, denoted by the index p . Grant recipient-fixed effects are indicated by η_k , state-fixed effects by γ_i , ministry-fixed effects by δ_j , and month-fixed effects by λ_t . Including these fixed effects allows us to control for general variations in the amount of assistance over time, across grant recipients and federal states and between ministries. The error term is denoted by ϵ_{pkijt} .

Secondly, our baseline estimation examines only the impact of belonging to the same party on project funding in the same month. However, it is quite plausible that, especially after the change of minister at federal level, it will take some time before new programs and guidelines are developed and people are exchanged. We therefore expect the effects of the change to be greatest after a few months. To test this hypothesis, we examine the effect of the timing of the change into treatment. The respective estimation equation is:¹⁰

$$Y_{pkijt} = \beta_{-H-1} \tilde{\Delta}_{i,j,t-H-1} + \sum_{h=1}^H \beta_{-h} \Delta_{i,j,t-h} + \beta_0 \Delta_{ijt} + \sum_{h=1}^B \beta_h \Delta_{i,j,t+h} + \eta_k + \gamma_i + \delta_j + \lambda_t + \nu_{pkijt}. \quad (2)$$

The binary right-hand-side variable, $\Delta_{i,j,t}$, indicates a change from different parties to same party for state i , ministry j , and period t . $\tilde{\Delta}_{i,j,t-H-1}$ summarizes changes into treatment in period $t-H-1$ and earlier. The number of lags, H , and leads, B , may differ. The omitted category captures all changes from different parties to same party that occur later than $t+B$ or never. Since we choose H and B so small that in our dataset there is no state-ministry pair with more than one treatment change in a period of length $B+H+2$, at maximum only one of the change variables Δ and $\tilde{\Delta}$ is different from zero. Month-, grant-recipient-, state-, and ministry-fixed effects are still included, and ν_{pkijt} denotes the error term.

Thirdly, since we can neither observe potential nor submitted but rejected applications, our analysis at the project level suffers from a selection of particularly promising projects in the sample. If our hypothesis that party-political closeness between the ministry and the state government increases the chances of success is correct, then this closeness stimulates the submission of more projects and reduces the likelihood of rejection. We therefore presumably underestimate the real impact of political proximity. In order to determine the overall influence of political proximity, we also aggregate projects monthly for all federal state-ministry combinations leading to the three-way-fixed-effects estimation equation

$$Y_{ijt} = \beta X_{ijt} + \gamma_i + \delta_j + \lambda_t + \mu_{ijt}, \quad (3)$$

¹⁰To reduce the number of symbols, we use the letter β for our main coefficient(s) of interest and the letters η , γ , δ , and λ for fixed effects in different models.

where μ_{ijt} indicates the error term. Y_{ijt} is the total amount of assistance for state i from ministry j in month t . Month-, state-, and ministry-fixed effects are still included. The aggregated funding amounts summarize the impact on submissions, rejections and funding amounts. On the other hand, due to the reduction in the number of cases associated with aggregation, the effects are less precisely estimated, and there are also many state-ministry-month combinations without a single project.

5.2. Estimation results at the project level

Table 5 shows the results of our main specification based on Equation (1). At first we only look at small projects; later we check to what extent the results change when larger projects are included. The dependent variable is the log of the funding amount and the treatment is defined as same party, where we consider the two “sister parties” CDU and CSU as one party. We include month-, grant recipient-, state- and ministry-fixed effects as explained before; standard errors are clustered at state level, which includes the combination of federal states and ministries, i.e., the level on which the variation in our treatment indicator occurs. To account for the small number of clusters, using `boottest` developed by [Roodman et al. \(2019\)](#) we apply wild bootstrapping to calculate standard errors and p values.¹¹

The treatment coefficient of Model (1), which does not include further covariates, is positive and statistically significant on the 5% level. This implies that the amount of assistance for projects in treated states is higher than of those located in untreated states. A link between political alignment and grant allocation exists for small research and innovation projects: federal ministers tend to favor state prime ministers belonging to the same political party. Our estimate indicates that treatment increases financial support by 4.11%. From the corresponding linear regression we obtain that the average absolute treatment effect equals 9534.52 euro. These numbers are clearly not negligible.

Models (2)-(4) extend our baseline specification by including alternately, but also jointly the dummies home constituency and joint project. The treatment coefficient is marginally insignificant in Model (2), but significant at the 5% and the 10% level in Models (3) and (4), respectively. The binary variable home constituency controls in Models (2) and (4) for federal ministers having their home constituency in the respective federal state, the variable joint project in Models (3) and (4) for projects being part of so-called joint projects that consist of several projects. We control for the constituency because, as mentioned in the literature review, many studies found that politicians favor their home constituencies.¹² However, we specifically address projects in which several project partners apply for a project together (joint projects). Although each project is still allocated an individual amount of assistance, the decision on whether a project is approved or not affects all project partners. While the coefficients for the home constituency dummies are positive, but comparably small and completely insignificant, those for joint projects are highly significant, comparably large and also positive. The treatment coefficient remains consistent. This indicates that the link between party affiliation and grant allocation is still prevalent when controlling for home constituencies and joint projects. Our results do not provide evidence on federal ministers favoring the federal states where their home constituencies are. For joint projects, the

¹¹Standard errors are typically larger than those based on cluster-robust variance estimators.

¹²Since coalitions with several parties involved rule predominantly at federal and state level and we also do not use municipalities with many heterogeneous units as analysis units, we cannot identify core or swing voters appropriately and therefore do not include them in the analysis.

amount of assistance each project gets is considerably larger, which might be caused by higher quality or more intense lobbying.

We also check whether our main result is robust to alternative sets of fixed effects. Table 13 in the appendix shows that neither dropping recipient-fixed effects nor substituting state- and ministry-fixed effects with state-ministry-fixed effects changes the coefficient of the treatment variable substantially, which, however, is weakly insignificant in the absence of recipient fixed effects.

Table 5:

Estimation results for small projects				
	(1)	(2)	(3)	(4)
treatment	.0403186 (0.0415)	.0393251 (0.1086)	.0404231 (0.0273)	.0391837 (0.0799)
home constituency		.0057322 (0.8384)		.0071514 (0.7502)
joint project			.55356 (0.0000)	.5535694 (0.0000)
N	82249	82249	82249	82249

Notes: Dependent variable: $\ln(\text{amount})$; treatment: same party. N does not include singletons. All regressions include month-, grant-recipient-, state- and ministry-fixed effects. Standard errors are clustered on state level; p values of wild bootstrapping with 9999 replications in parantheses.

To get a better understanding of the exact mechanism, we examine three variations of the treatment variable. Table 6 has the results. First, Model (1) distinguishes between the two “sister parties” CDU and CSU. Although they form a parliamentary group in the German parliament, they are in a narrow sense two different parties, which we can examine separately. In addition, we focus on political preferences. To that end, Model (2) includes the variable “same political spectrum” which captures whether the federal minister and the state prime minister are from the same political spectrum. The left spectrum includes the SPD, the Green Party and the Left Party, while the right spectrum includes the CDU/CSU and the Free Democratic Party (FDP). Finally, we consider the parties of the government coalition in the German Bundestag to be linked. The variable “coalition members” of Model (4) is equal to 1 if the state prime minister’s party is part of the government coalition in the Bundestag at the respective time. CDU and CSU were federal government parties for the entire observation period, but after the federal election in September 2013 the SPD replaced the FDP in December 2013. The positive and significant coefficient of Model (1) shows that the link described in the previous subsection also exists for a separate analysis of CDU and CSU. Models (2) and (4) seem to suggest that members of the same political spectrum and of the federal government coalition are similarly aligned. However, Models (3) and (5) demonstrate that this is not true. These models compare membership of the political spectrum and the ruling coalition with membership of the same party. Model (3) uses “different political spectrum” as reference category and analyzes the effect of “same political spectrum, different parties” and “same party” separately. In a similar way, Model (5) examines “different coalition members” and “same party”. Both the coefficients of “same political spectrum, different parties” and “different coalition members” are not significant, whereas the coefficient of “same party” is significantly positive in Models (3) and (5). This demonstrates that the membership of the same party determines the spectrum and coalition effects. Since parties on the same political spectrum still pursue different political goals and compete with one another, and coalition members are only temporary allies, the political spectrum and coalition

membership create weaker connections than party membership.

Table 6:

Estimation results for variations of the treatment variable					
	(1)	(2)	(3)	(4)	(5)
same party (CDU \neq CSU)	.0283657 (0.0777)				
same political spectrum		.0331837 (0.0525)			
same political spectrum, different parties			-.003185 (0.8156)		
same party			.0399977 (0.0556)		
coalition members				.0275617 (0.0357)	
different coalition members					.0062661 (0.6925)
same party					.04467 (0.0167)
N	82249	82249	82249	82249	82249

Notes: Dependent variable: $\ln(\text{amount})$. N does not include singletons. All regressions include month-, grant-recipient-, state-, and ministry-fixed effects. Standard errors are clustered on state level; p values of wild bootstrapping with 9999 replications in parantheses.

Table 7 shows results for both small and medium-sized projects as well as for all projects together (small, medium and large projects). Treatment coefficients are positive for small and medium-sized projects and for the universe of projects. But the coefficient is only significant for small and medium-sized projects, which indicates that the significance level decreases, the more we include larger projects. These results suggest that the link between party affiliation and funding gets weaker with increasing project magnitude. One explanation for this finding could be the more strictly regulated selection process for larger projects. It is likely that for larger projects stronger control mechanisms exist ([Bundesministerium für Verkehr und digitale Infrastruktur, 2018](#)) and there is also much more public participation to increase public acceptance (see for example [Schmalz \(2019\)](#), [Schönrock \(2019\)](#) and [Umweltbundesamt \(2017\)](#)), which presumably makes it more difficult to transfer resources according to the interests of the political parties. Since, in general, there are also more decision-makers involved in decision processes on major projects, no politician alone can influence the allocation of funds. For example, in major projects, there often is involvement by overall project managers ([Kompetenzzentrum \(Groß-\)Projektmanagement, 2020](#)). For small projects, on the other hand, usually fewer control mechanisms exist, which in turn makes it more difficult to adequately monitor the allocation process.

5.3. Estimation of changes into treatment

Table 8 shows the results of an estimate with lags and leads from changing into treatment for small projects, defined by Equation (2). The reference category of the analysis is “currently no treatment, but change into treatment more than one month later or never in the future”. The effect of change into the treatment is greatest when it is 3 months ago (the more recent changes are not significant). It becomes significantly weaker if the change happened earlier. The non-statistically significant coefficients of future changes indicate that the ministerial bureaucracy does not independently anticipate the change. This

Table 7:

Estimation results for larger projects		
	small & medium projects	all projects
treatment	.0372302 (0.0145)	.0312289 (0.1487)
N	84879	85348

Notes: Dependent variable: $\ln(\text{amount})$; treatment: same party. N does not include singletons. All regressions include month-, grant-recipient-, state-, and ministry-fixed effects. Standard errors are clustered on state level; p values of wild bootstrapping with 9999 replications in parantheses.

can be interpreted as a sign of direct intervention by the head of the ministry or of the importance of management position changes.

Table 8:

Estimation results for change into treatment	
	$\ln(\text{amount})$
treated now	.0198793 (0.4594)
treated one month ago	.0922362 (0.1315)
treated two months ago	.2722322 (0.1014)
treated three months ago	.2379457 (0.0365)
treated four months ago	.2285705 (0.0384)
treated five months ago	.1579145 (0.0683)
treated earlier	.0299461 (0.0901)
treated one month later	-.0086753 (0.8981)
N	82249

Notes: Dependent variable: $\ln(\text{amount})$; treatment: change from different parties to same party; reference category: change into treatment more than two months later or never. N does not include singletons. All regressions include month-, grant-recipient-, state-, and ministry-fixed effects. Standard errors are clustered on state level; p values of wild bootstrapping with 9999 replications in parantheses.

5.4. Estimation results at the state-ministry level

We aggregate funding for every month and any combination of state and ministry, leading to 9600 (= 10 years \times 12 months \times 16 states \times 5 ministries) observations. For 2338 observations there is no funding. We consider four outcome variables, a dummy variable “any project”, “funding per project”, “number of projects” and “ $\ln(\text{total funding})$ ”. For the last three variables we include only observations with positive funding. We include month-, state- and ministry-fixed effects and cluster standard errors at the state level. Table 9 shows the results for estimating Equation (3) for aggregated small projects. The treatment only has significant effects on funding per project; it does neither increase the likelihood of any funding nor, if there is funding at all, the number of projects and total funding. The estimated effect on funding per project is roughly 2/3 larger than the estimate we got at the project level.

These results suggest that project planners do not consider the political environment when submitting projects and that the political influence is primarily in the setting of the budget. While independent experts determine the eligibility of funding, administration and politicians can exert influence on the specific allocation of funds. That is not surprising, since the budget size and distribution is obviously not decided solely on the basis of scientific quality, but also on the basis of political and social objectives, as well as the budget constraint of the ministry.

Table 9:

Estimation results for small projects aggregated at state-ministry level				
	any project	funding per project	number of projects	ln(total funding)
treatment	.0005386 (0.9737)	16244.57 (0.0053)	.7023711 (0.4484)	.1163318 (0.1519)
N	9600	7262	7262	7262

Notes: treatment: same party (monthly lagged). All regressions include month-, state-, and ministry-fixed effects. Standard errors are clustered on state level; p values of wild bootstrapping with 9999 replications in parantheses.

6. Conclusion

Our analysis adds additional relevant insights to the existing literature on distributive politics: In the literature, the focus often lies on regional assistance when addressing the question if politico-economic criteria play a role in grant allocation. Our paper shows that politico-economic criteria are also relevant in the geographical distribution funding for research, development and innovation projects, a topic which has not received much attention so far. A link between party affiliation and grant allocation is obviously existing in Germany for small projects, where control mechanisms are less strict than for major projects. These results allow to draw some interesting conclusions for grant allocation. In the public perception, major projects are often considered as involving inefficient allocation of resources. One reason for this view could lie in the fact that in many cases, major projects finally turn out to be much more expensive than originally planned, which is frequently perceived as a waste of resources. Although this might point to general problems concerning public procurement, for example, our analyses do not indicate that funding for major projects is considerably distorted by politico-economic criteria. While the link between party affiliation and grant allocation is weak for all projects, it is considerably stronger for small projects. So the issue of politico-economic aspects influencing grant allocation might be addressed by better supervising approvals of small projects, where control mechanisms might not be strong enough yet to prevent favoritism.

Although we only have access to a comparatively limited range of information in the entire process of project funding decision-making, we can already measure a distorting effect of belonging to the same party on the funding of research, development and innovation projects. For future research, it would be very desirable to get information on the administrative and political mechanisms behind the approval decisions. In particular, it would be interesting to see if approvals of projects where political alignment exists are more or less likely if competitiveness among applicants increases. Moreover, additional information on the specific evaluation of the quality of applications according to certain defined criteria would also yield valuable insights. Do these criteria equally play a role in the final decision? Or are there some exceptions

made in cases where for instance only one criterion is not fulfilled or one application is only slightly worse in one criterion to favor a certain application? Of course, these questions affect a highly confidential aspect of the project application procedure and thus, it is not too likely to get any additional information allowing to address these reflections.

The finding that there is a connection between party membership and granting of funding for research, development and innovation projects in Germany has important political implications. It implies that grant allocation is, at least in part, not only determined by objective quality criteria but somewhat distorted by criteria that do not contribute to efficient use of resources. In terms of assessing the efficiency of public spending on research, development and innovation projects, this means that less suitable applications could be given preference than those that would actually be best suited in terms of the official allocation criteria. Therefore, the efficiency of public spending could be increased if these distortions were reduced. This could possibly be achieved through greater transparency of allocation and funding or through delegation to expert commissions unrelated to the political parties. In any case, the issue of biases in the allocation of grants deserves further attention in the future. Efforts should therefore be made to provide access to more information on funding decision-making processes.

Finally, it would be important to find out to what extent the results can be transferred to other countries, also in order to better understand the role of specific institutions.

Acknowledgements. This paper was presented at the Public Economics Research Seminar in Munich. The comments of Andreas Mense, Niklas Potrafke, and Panu Poutvaara are greatly appreciated.

References

- Albouy, D. (2013). Partisan representation in congress and the geographic distribution of federal funds. *The Review of Economics and Statistics*, 95(1):127–141.
- Ansolabehere, S. and Snyder Jr, J. M. (2006). Party control of state government and the distribution of public expenditures. *The Scandinavian Journal of Economics*, 108(4):547–569.
- Aschhoff, B. (2010). Who gets the money?: The dynamics of R&D project subsidies in germany. *Journal of Economics and Statistics (Jahrbuecher fuer Nationaloekonomie und Statistik)*, 230(5):522–546.
- Asher, S. and Novosad, P. (2017). Politics and local economic growth: Evidence from India. *American Economic Journal: Applied Economics*, 9(1):229–73.
- Bach, T. and Veit, S. (2017). The determinants of promotion to high public office in Germany: Partisan loyalty, political craft, or managerial competencies? *Journal of Public Administration Research and Theory*, 28(2):254–269.
- Baskaran, T. and Hessami, Z. (2017). Political alignment and intergovernmental transfers in parliamentary systems: evidence from Germany. *Public Choice*, 171.
- Berry, C. R., Burden, B. C., and Howell, W. G. (2010). The president and the distribution of federal spending. *American Political Science Review*, 104(4):783–799.
- Berry, C. R. and Fowler, A. (2016). Cardinals or clerics? congressional committees and the distribution of pork. *American Journal of Political Science*, 60(3):692–708.
- Bracco, E., Lockwood, B., Porcelli, F., and Redoano, M. (2015). Intergovernmental grants as signals and the alignment effect: Theory and evidence. *Journal of Public Economics*, 123:78 – 91.
- Brassiolo, P., Estrada, R., and Fajardo, G. (2020). My (running) mate, the mayor: Political ties and access to public sector jobs in Ecuador. *Journal of Public Economics*, 191(C):S004727272030150X.
- Brollo, F. and Nannicini, T. (2012). Tying your enemy’s hands in close races: The politics of federal transfers in Brazil. *The American Political Science Review*, 106(4):742–761.
- Bundesministerium für Bildung und Forschung (2019). *Bildung und Forschung in Zahlen 2019*.
- Bundesministerium für Bildung und Forschung (2020). *Bundesbericht Forschung und Innovation 2020 - Forschungs- und innovationspolitische Ziele und Maßnahmen*.
- Bundesministerium für Bildung und Forschung - Referat Informationstechnik (2020). Förderkatalog. <https://foerderportal.bund.de/foekat/jsp/StartAction.do?actionMode=list>, [accessed 09 July 2020].
- Bundesministerium für Verkehr und digitale Infrastruktur (2018). *Leitfaden Großprojekte*.
- Bundesministerium für Wirtschaft und Energie (2020). *Öffentliche Infrastruktur in Deutschland: Probleme und Reformbedarf*.

- Bundesministerium für Bildung und Forschung - Referat Grundsatzfragen von Innovation und Transfer (2021). Forschungsförderung. <https://www.bmbf.de/de/wie-wird-forschung-finanziert-11936.html>, [accessed 22 June 2021].
- Cadot, O., Röller, L.-H., and Stephan, A. (2006). Contribution to productivity or pork barrel? the two faces of infrastructure investment. *Journal of Public Economics*, 90(6):1133–1153.
- Cantner, U. and Kösters, S. (2012). Picking the winner? empirical evidence on the targeting of R&D subsidies to start-ups. *Small Business Economics*, 39(4):921–936.
- Carozzi, F. and Repetto, L. (2016). Sending the pork home: Birth town bias in transfers to Italian municipalities. *Journal of Public Economics*, 134:42–52.
- Castells, A. and Solé-Ollé, A. (2005). The regional allocation of infrastructure investment: The role of equity, efficiency and political factors. *European Economic Review*, 49(5):1165–1205.
- Cataldo, M. D. and Monastiriotis, V. (2020). Regional needs, regional targeting and regional growth: an assessment of EU cohesion policy in UK regions. *Regional Studies*, 54(1):35–47.
- Colonnelli, E., Prem, M., and Teso, E. (2020). Patronage and selection in public sector organizations. *American Economic Review*, 110(10):3071–99.
- Curto-Grau, M. and Zudenkova, G. (2018). Party discipline and government spending: Theory and evidence. *Journal of Public Economics*, 164:139–152.
- Dellmuth, L. M., Schraff, D., and Stoffel, M. F. (2017). Distributive politics, electoral institutions and European structural and investment funding: Evidence from Italy and France. *Journal of Common Market Studies*, 55(2):275–293.
- Dixit, A. and Londregan, J. (1995). Redistributive politics and economic efficiency. *The American Political Science Review*, 89(4):856–866.
- Dixit, A. and Londregan, J. (1998). Fiscal federalism and redistributive politics. *Journal of Public Economics*, 68(2):153–180.
- Fiva, J. H., Geys, B., Heggedal, T.-R., and Sørensen, R. (2021). Political alignment and bureaucratic pay. *Journal of Public Administration Research and Theory*.
- Garofalo, P., Lema, D., and Streb, J. M. (2020). Political budget cycles and voting within a federal country: The influence of political alignment. *Economics and Politics*, 32(2):305–334.
- Grimpe, C. (2012). Extramural research grants and scientists’ funding strategies: Beggars cannot be choosers? *Research Policy*, 41(8):1448–1460.
- Grossman, P. (1994). A political theory of intergovernmental grants. *Public Choice*, 78(3-4):295–303.
- Hegde, D. and Mowery, D. C. (2008). Politics and funding in the U.S. public biomedical R&D system. *Science*, 322(5909):1797–1798.

- Jennes, G. and Persyn, D. (2015). The effect of political representation on the geographic distribution of income: Evidence using Belgian data. *European Journal of Political Economy*, 37:178–194.
- Kang, H. D., Edelman, E., and Ku, D. N. (2019). Who creates jobs? venture capital, research grants, and regional employment in the U.S. *Industry and Innovation*, 26(6):690–714.
- Kauder, B., Potrafke, N., and Reischmann, M. (2016). Do politicians reward core supporters? Evidence from a discretionary grant program. *European Journal of Political Economy*, 45:39 – 56.
- Kemmerling, A. and Stephan, A. (2002). The contribution of local public infrastructure to private productivity and its political economy: Evidence from a panel of large German cities. *Public Choice*, 113:403–24.
- Knight, B. (2002). Endogenous federal grants and crowd-out of state government spending: Theory and evidence from the federal highway aid program. *American Economic Review*, 92(1):71–92. cited By 173.
- Knight, B. (2004). Parochial interests and the centralized provision of local public goods: evidence from congressional voting on transportation projects. *Journal of Public Economics*, 88(3):845–866.
- Kompetenzzentrum (Groß-)Projektmanagement (2020). *S-O-S-Methode© für Großprojekte - Version 3.0*. Bundesverwaltungsamt.
- Larcinese, V., Rizzo, L., and Testa, C. (2005). Allocating the US federal budget to the states: the impact of the President. Sticerd - political economy and public policy paper series, Suntory and Toyota International Centres for Economics and Related Disciplines, LSE.
- Larcinese, V., Snyder, J. M., and Testa, C. (2013). Testing models of distributive politics using exit polls to measure voters’ preferences and partisanship. *British Journal of Political Science*, 43(4):845–875.
- Levitt, S. D. and Snyder Jr., J. M. (1995). Political parties and the distribution of federal outlays. *American Journal of Political Science*, 39(4):958–980.
- Maaser, N. and Stratmann, T. (2016). Distributional consequences of political representation. *European Economic Review*, 82:187–211.
- Migueis, M. (2013). The effect of political alignment on transfers to Portuguese municipalities. *Economics & Politics*, 25(1):110–133.
- Palus, C. and Yackee, S. (2016). Clerks or kings? Partisan alignment and delegation to the US bureaucracy. *Journal of Public Administration Research and Theory*, 26(4):693–708.
- Pinho, M. M. and Veiga, L. (2007). The political economy of intergovernmental grants: Evidence from a maturing democracy. *Public Choice*, 133:457–477.
- Plöhn, J. and Steffani, W. (1994). Bund und Länder in der Bundesrepublik Deutschland. *Handbuch der deutschen Bundesländer*, 2:33–48.

- Psycharis, Y., Rodríguez-Pose, A., and Tselios, V. (2019). Ministers and distributive politics: political influences in the regional allocation of public investment in Greece. *Territory, Politics, Governance*, pages 1–30.
- Reingewertz, Y. and Baskaran, T. (2020). Distributive spending and presidential partisan politics. *Public Choice*, 185(1):65–85.
- Roodman, D., MacKinnon, J., Nielsen, M., and Webb, M. (2019). Fast and wild: bootstrap inference in Stata using boottest. *Stata Journal*, 19(1):4–60.
- Sakurai, S. and Theodoro, M. (2020). On the relationship between political alignment and government transfers: triple differences evidence from a developing country. *Empirical Economics*, 58.
- Schmalz, I. M. (2019). *Akzeptanz von Großprojekten - Eine Betrachtung von Konflikten, Kosten- und Nutzenaspekten und Kommunikation*. Springer-Verlag GmbH Deutschland.
- Schönrock, E. (2019). *CSR und Energiewirtschaft - CSR-Kommunikation 3.0: Basis für eine erfolgreiche Energiewende, Bürgerbeteiligung und Akzeptanz von Großprojekten*. Springer-Verlag GmbH Deutschland.
- Solé-Ollé, A. and Sorribas-Navarro, P. (2008a). Does partisan alignment affect the electoral reward of intergovernmental transfers? *Documents de treball IEB, N^o. 2, 2008*.
- Solé-Ollé, A. and Sorribas-Navarro, P. (2008b). The effects of partisan alignment on the allocation of intergovernmental transfers. Differences-in-differences estimates for Spain. *Journal of Public Economics*, 92(12):2302–2319. New Directions in Fiscal Federalism.
- Stratmann, T. and Baur, M. (2002). Plurality rule, proportional representation, and the German Bundestag: How incentives to pork-barrel differ across electoral systems. *American Journal of Political Science*, 46(3):506–514.
- Tingvall, P. G. and Videnord, J. (2020). Regional differences in effects of publicly sponsored R&D grants on SME performance. *Small Business Economics*, 54(4):951–969.
- Umweltbundesamt (2017). *Dokumentation des Fachgesprächs - Das 3x3 einer guten Öffentlichkeitsbeteiligung bei Großprojekten*.
- Woyke, W. (2021). Bundesländer (Länder). In Andersen, U., Bogumil, J., Marschall, S., and Woyke, W., editors, *Handwörterbuch des politischen Systems der Bundesrepublik Deutschland*, pages 65–68. Springer Fachmedien Wiesbaden, Wiesbaden.
- Young, A. T. and Sobel, R. S. (2013). Recovery and reinvestment act spending at the state level: Keynesian stimulus or distributive politics? *Public Choice*, 155(3/4):449–468.

Appendix

Table 10:

Structure of the data in the Funding Catalogue

variable	description
ministry	ministry that approved the funding
grant recipient	direct beneficiary of the funding
executing entity	entity where project is actually conducted
topic	description of the content of the project
systematic classification	field of research the project is related to
beginning and end of project duration	start date and end date of the project
amount of assistance	sum of funding in euro granted for the full project length
funding profile	broad category in which the project falls
joint project	information on whether there are several project partners having applied for a project together

Table 11: Classification of projects

	Small	Medium	Large	Mega/ Program
Structure of project	project leader (PL)-team	PL-team, overall-PL	overall-PL, PL-team, project management office (PMO)	program manager, overall-PL, PL-team, program office
Communication	easy (PL)	extensive (overall-PL)	communication plan (overall-PL, PM, PMO)	communication plan (separately for sub-projects)
Planning/ Controlling	1 plan by PL	overview/ detail by overall-PL + PL	several sightings, PMO (determined function)	map, determined function, separate sub-project
Project management (PM) processes	mostly pragmatic; minimum of structure	structured	formal, support by determined function	formal, complex, separate sub-projects
Total effort in persons/year (PY)	≤ 5	$> 5 - \leq 50$	$> 50 - \leq 500$	> 500
Total costs in million euro	≤ 2	$> 2 - \leq 10$	$> 10 - \leq 100$	> 100
Economic efficiency according to Federal Budget Code (BHO)	$< 0,5$ PY version 1(+4), < 5 PY version 1,2(+4)	all versions	all versions	all versions
Examples	migration software	introduction of document management system	consolidation of distributed computer centers	IT-invest program/ stimulus package II

Table 12:

Top ten largest projects

grant recipient	amount of assistance
Deutsche Forschungsgemeinschaft (DFG) (German Research Association)	2,049,099,650
Facility for Antiproton and Ion Research in Europe (FAIR)	766,289,553
Deutscher Akademischer Austauschdienst (German Academic Exchange Service)	449,475,195
Deutsche Forschungsgemeinschaft (DFG) (German Research Association)	409,264,000
Alexander von Humboldt-Stiftung (Alexander von Humboldt-Foundation)	289,917,529
Deutsche Forschungsgemeinschaft (DFG) (German Research Association)	288,750,000
Stiftung Begabtenförderung berufliche Bildung (SBB) (Vocational Training Foundation for the Highly Talented)	284,710,613
Fraunhofer-Gesellschaft (Fraunhofer Society)	281,482,032
Stiftung Begabtenförderung berufliche Bildung (SBB) (Vocational Training Foundation for the Highly Talented)	236,903,691
Gauss Centre for Supercomputing (GCS)	226,333,333

Table 13:

Estimation results for small projects			
	(1)	(2)	(3)
treatment	.0403186 (0.0454)	.0563523 (0.1448)	.0392244 (0.0146)
month fe	yes	yes	yes
state fe	yes	yes	no
ministry fe	yes	yes	no
state-ministry fe	no	no	yes
recipient fe	yes	no	yes
N	82249	95781	82249

Notes: Dependent variable: $\ln(\text{amount})$; treatment: same party. N does not include singletons. Standard errors are clustered on state level; p values of wild bootstrapping with 9999 replications in parantheses.